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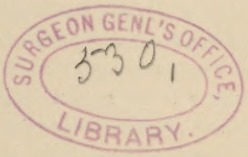

ABSCESS OF THE BRAIN.*

By N. B. CARSON, M. D.,
ST. LOUIS.

An eminent surgeon of London, ten years ago, is said by McEwan to have asserted that to see an abscess of the brain, even post mortem, was an event of a lifetime. This seems strange, as I am quite sure there is not a surgeon in this city of twenty years' experience who has not seen more than one case of abscess of the brain during the first ten years of his practice, and the opportunities afforded here are by no means to be compared with those of the great city of London. During twenty odd years of practice I have seen quite a number of abscesses in this region, arising, some of them from injury, some of them (by far the greatest number) from ear disease, one from nasal trouble, and one, a recent case, from a most unique cause—a bite of a wood tick upon the scalp.

The first case of the kind that I now call to mind was under my care in the St. Louis Mullanphy Hospital in the year 1872, during the absence of Dr. Gregory, whose case it was:

* Read before the St. Louis Surgical Society, January 23, 1895.

The patient, a boy about seven years of age, had fallen some months before from the third story window to the pavement below, striking upon the top and side of the head over the parietal region. The skull was very badly mashed, and at the time of the injury and subsequently a number of fragments of the cranium were taken away. When he was brought to the hospital there was a large suppurating wound through which the brain substance protruded (hernia cerebri). I, at various times, removed pieces of dead bone and sliced off portions of the protruding brain substance. At one point (I think it was behind the Rolandic fissure), after some days, I noticed a soft fluctuating spot, which I accidentally opened while examining. As a result a considerable quantity of pus was discharged. I did not attempt to wash or drain the cavity; I did not even introduce a probe; I thought I had already done enough. Suffice it to say that after many weeks in the hospital the child made a good recovery and left with the wound almost closed.

Another case occurred at the same time that the one described above was under my observation.

The patient, a young man about twenty-two or twenty-three years of age, a waiter by occupation, had, in a quarrel, been struck with a fork, the prongs of which were broken off, one in the soft tissues, where it had formed an abscess, and two had been driven through the bone into the brain substance. The region of the injury was the left temple. I saw the case three weeks after the stabbing. The prong buried in the soft tissue had been removed by the physician first in attendance. The second prong I removed after I was called. This one went through the bone into the brain at least an inch. The third was removed post mortem, and, like the one I had removed, extended through the bone about an inch into a large abscess in the brain substance. There were absolutely no symptoms of cerebral disturbance until within three or four days of the patient's death, when he commenced complaining of severe headache, and it was noticed that he was more or less drowsy and

indifferent to his surroundings. This condition gradually increased until he became profoundly comatose. The diagnosis of brain abscess was made by Dr. Hodgen, who saw the case with me in consultation a short time before the patient's death. Upon removing the scalp, after death, the third prong of the fork was found where it had been broken off almost even with the surface of the bone. Upon removing the calvarium an abscess was found involving the frontal lobes.

Still another case is worth mentioning, that of a child of four years of age, who suffered from nasal catarrh, the result of an injury. The infection extended through the cribriform plate of the ethmoid to the brain and formed an abscess which resulted in death.

Besides these cases, which I saw in ante-localizing days, I have seen a number of abscesses of the brain the result of disease of the middle ear, and the majority of them have been in adults. Within a period extending a little over three years I have seen nine cases of abscess of the brain, and of this number eight have resulted from disease of the middle ear. Of all these cases, two are of particular interest. I deem them worthy of a detailed description:

Last January I was called upon to open the mastoid antrum on account of a suppurating inflammation of the middle ear in a lad of fifteen years. I had not seen the case until I went to the house to operate, when I learned that the patient had had for several years, off and on, a discharge from the ear. Two weeks or thereabouts before I saw him he had had an attack of the old trouble, and Dr. Lemoine, the family physician, sent for Dr. Jones, who treated him for some days until the ear symptoms were much improved. Again the pain in the ear became intense and Dr. Jones was called and decided that the antrum should be opened. I was then sent for and found the ear discharging freely; while pressure over the mastoid caused pain, there was no perceptible swelling. The pulse was 100; the temperature before my arrival was over 102°. The operation was done at once, the antrum and middle ear curetted.

That evening the temperature was normal and the pulse 80. The night after the operation was passed well; once during the night he vomited, but this was attributed to the chloroform. During the next day he was bright and seemed much better, except that he complained of pain in the back of the head. The pulse was slow, only 68, but otherwise good. The temperature during the day was a little over 99°; there was also more or less vomiting. I now began to fear abscess of the brain. The second night was not as good as the first, although he rested fairly well. The next morning he was obtuse, and it was some time before I could get him to notice me, but this I attributed to the fact that I was about to dress the wound and he had no kindly feelings toward me, as after I had finished he was bright and talkative, asking me a number of questions. I forgot to mention that I dressed the wound daily and that the washing out of the ear always caused severe pain in the head, which subsided immediately.

At my evening visit the nurse told me that he had had a good day, seeming more like himself than he had for some time. The vomiting, however, had increased and the temperature fell below normal; the vomiting was always preceded by nausea and generally followed the introduction of food into the stomach, of which during the day he had taken a fair amount. He still complained of pain in the back of the neck. The third night he was very restless. I now made up my mind that we had an abscess of the brain to deal with. The next morning he was wild and very profane and vulgar in his language. The temperature was now most of the time subnormal, while the pulse varied from 68 to 78 and was small and compressible. The tendon reflexes were exaggerated and vomiting continued, and he would frequently cry out on account of the pain in the head. Emaciation was marked.

That evening, the third day after the operation, I met Dr. Bremer, Dr. Lemoine, and Dr. Jones in consultation, and they agreed with me as to the presence of an abscess in the brain, but it was decided that the patient was too weak for any operative interference at that time. Heart tonics, nutrient enemata, etc., were ordered in hopes of improving the patient's

condition. The next day the patient seemed somewhat better, while the cerebral symptoms remained unchanged. The two days following showed little or no change.

After another consultation with the same gentlemen it was decided to operate as a forlorn hope. Everything was explained to the parents and their consent obtained. One week from the time of the first operation, an opening was made through the cranium an inch and a quarter behind the middle of the external meatus and three fourths of an inch above Reed's base line. Into this opening the brain protruded and was entirely free from pulsation. The temporal lobes were first explored with negative results. The opening was then enlarged downward with the rongeur forceps and the cerebellum explored, when there was a gush of pus. With a forceps following the director this opening in the brain was enlarged, and the abscess cavity emptied. The abscess must have involved almost the entire cerebellar hemisphere, judging from the quantity of pus poured out. The patient was returned to bed in a very bad condition, and survived the operation only an hour and a half.

This case was remarkable only in the fact that an abscess of that size could exist and at the same time manifest comparatively few symptoms. I was assured by the different members of the family that they had at no time noticed any change in his disposition. Another remarkable feature about the case is, that he was able to go through, without fault, difficult gymnastic exercises, dance, play baseball, football, etc.

The following very unique case came under my care at the St. Louis Mullanphy Hospital in the latter part of June last:

The patient, a well-developed boy of eight years of age, was a resident of the southern portion of this State. From his history it was learned that about the 11th day of last May he had been bitten on the right side of the head by an ordinary wood tick, common to this region. About a week later it was no-

ticed that the part was inflamed and that the patient had fever. This condition lasted for three weeks, when an abscess formed under the scalp limited by the eyebrows in front and extending almost to the parietal eminence behind, the median line above, and the zygomatic arch below. The abscess was opened by the attending physician, and healed rapidly after it had been emptied. On the 8th of June he was seized with a spasm which involved, first the muscles about the outer angle of the left eye, then the angle of the mouth, then the arm, and finally the leg of the same side. This condition is said to have lasted five hours, during which time the patient was speechless, and, part of the time at least, unconscious. This left the entire left side more or less paretic, but especially about the angle of the mouth.

On the 22d of June he had another spasm, not so severe as the preceding one. This lasted three hours, during all of which time the patient retained consciousness and the power of speech, but when it passed off, the paresis of the face was almost complete, while that of the body was decidedly increased. This spasm began with twitching of the angle of the mouth; from there it went to the eye, then to the shoulder, arm, and leg. About this time an abscess in the apex of the left lung was discovered which opened into a bronchial tube and discharged. I saw him first on the 29th of June. At that time he was much wasted. Upon physical examination, found the skin pale, the muscles soft and flabby. On the right side of the head was a soft, fluctuating tumor, an abscess of about the size of a large hickory nut. The face and right side of the body were almost completely paralyzed. The family history was good, and up to a short time before he was bitten he had been healthy and strong. The mother stated that she had noticed some time before this that he was languid and not in his usual good health, and complained of feeling tired, etc. The heart was healthy. The pupils were found to respond normally. The tendon reflexes increased, more marked on the left side; ankle and knee clonus marked on the left side, slight on right; the senses of touch and sensation were unimpaired. The pulse was 81, irregular, intermitting, a beat now and then, becoming alternate-

ly fast and then very slow. He was also very impatient, not brooking delay, and complained of hunger continually, the appetite never seeming to be gratified. The mother stated that he had always been of a good disposition, and while he possessed a good appetite, it was not inordinate.

On the 4th of July the abscess on the scalp was opened by one of my assistants and washed. An examination of the urine showed hyaline casts with adherent crystals of the phosphates; no albumin, crystals of the urates, phosphates, and indican. Dr. Le Beau and Dr. Wolfner, who kindly examined the eyes, report, July 6th, that when at rest the eyes were turned upward and to the left; the pupils were slightly dilated and responded promptly to light; the fundus was normal, except the disc, which had a watery, suffused look suggesting œdema, but there was absolutely no swelling. The veins were somewhat enlarged, while the arteries were normal.

On the 9th of July I operated and, upon removing the scalp, found that the bone at the site of the abscess, above referred to, had been entirely destroyed so as to expose the dura; the opening was enlarged downward and forward. The dura upon its outer surface was covered with a dirty grayish exudation; when incised it was found to be much thickened, while its under surface was perfectly healthy, as were also the underlying membranes and brain surface. When the dura was incised, the brain substance protruded to such an extent that I feared it might rupture. There was an entire absence of pulsation. Upon introducing a small grooved director downward and forward there was a discharge of yellow, healthy-looking pus (about two ounces). The opening was enlarged by carrying forceps along the director; the pus was freely discharged, the cavity washed, and a drain introduced. The patient made a good but slow recovery, and when he left the hospital on August 9th he was able to walk with little assistance. The wound had entirely healed except at one point, from which came a slight discharge due to a small necrosis of the cranium.

November 22d.—The patient visited me to-day entirely recovered in general health, all signs of sickness having disappeared, except that he is totally blind, a condition which has

come on gradually since his return home. Dr. Le Beau and Dr. Wolfner again examined the eyes and report that they found the pupils widely dilated without any perception of light; the fundus mottled with atrophic chorioiditis spots, the disc atrophic. Dr. Ravold, who took the pus discharged from the abscess at the time of the operation, reports that he got a pure culture of *Staphylococcus pyogenes aureus*, thus confirming the diagnosis of infective abscess of the brain and lung.

Now the question presents itself as to how this infection reached the brain, as we have seen that the under surface of the dura was perfectly healthy, as was also the underlying membrane as well as the brain surface. Was its position a coincidence, or was it a direct infection from the abscess under the scalp? I think it was direct, and occurred through the communicating veins which, in fœtal life, extend through the dura into the brain. Some of these veins, like similar vessels in other parts of the body, may have remained patulous and conveyed the micro-organism from the surface to the interior of the brain.

In this case we also have a confirmation of the theory as to the location of motion and the senses of touch and sensation; the area in front of the Rolandic fissure being purely motor, while the tactile senses and sensation are said to be confined to the posterior regions. Here the abscess was, so far as it was possible to determine, limited to the two lower frontal convolutions, and precentral, and as a result the motor functions were markedly involved, while sensation and the tactile senses remained perfect, a most careful examination having been made to determine this point.

How is the resulting blindness to be explained? There was evidently a certain amount of encephalitis, involving, in all probability, a great portion of the anterior part of the respective hemisphere, together with the optic commis-

sure, and the blindness was possibly a result of the inflammatory changes in the commissure and optic nerves.

A similar case is described by Williamson in the *British Medical Journal* for February 1, 1891.

I forgot to mention that when the patient left the hospital there was a large cerebral hernia. This hernia was still present when I saw him in November, but had decidedly diminished. Some time after his return home a small piece of dead bone was removed from the sinus, existing when he was discharged from the hospital, after which it rapidly healed.

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